

Fall Prevention Program

Purpose

Slips, trips, and falls constitute the majority of general industry accidents. They cause 15% of all accidental deaths, and are second only to motor vehicles as a cause of fatalities. Active participation by management, supervisors and employees is necessary to prevent hazardous conditions that could result in slips, trips or falls.

Responsibilities

Management

- Conduct routine inspections to ensure all walking and working surfaces are free from slip, trip and fall hazards.
- Conduct training for employees who use ladders, scaffolds or other elevated platforms
- Conduct training in use and inspection of fall prevention & arrest equipment
- Ensure proper ladders are used for specific tasks
- Provide adequate fall prevention & arrest equipment

Employees

- Maintain work areas free from slip, trip & fall hazards
- Correct or immediately report slip, trip and fall hazards
- Use proper ladders for assigned tasks

Hazard Control

Engineering Controls

- Proper construction of elevated locations
- Use of hand, knee and toe rails where required
- Proper design of fixed ladders & stairs
- Adequate lighting in all areas

Administrative Controls

- Training for all employees who work at elevated location
- Routine inspections of ladders, stairs, walking and working surfaces
- Following Housekeeping Program requirements
- Immediate cleanup of material spills

GENERAL REQUIREMENTS

Housekeeping

Simple Housekeeping methods can prevent slip-trip-fall hazards:

- All work areas, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition.
- The floor of every area shall be maintained in a clean and, so far as possible, a dry condition. Where wet processes are used, drainage shall be maintained and gratings, mats, or raised platforms shall be provided.
- Every floor, work area and passageway shall be kept free from protruding nails, splinters, holes, or loose boards.

Aisles and Passageways

- Aisles and passageways shall be kept clear and in good repair with no obstruction across or in aisles that could create a hazard.
- Permanent aisles and passageways shall be appropriately marked.
- Where mechanical handling equipment is used, aisles shall be sufficiently wide. Improper aisle widths coupled with poor housekeeping and vehicle traffic can cause injury to employees, damage the equipment and material, and can limit egress in emergencies.

Floor Loading Protection

Load rating limits shall be marked on plates and conspicuously posted. It shall be unlawful to place, or cause, or permit to be placed, on any floor or roof of a building or other structure, a load greater than that for which such floor or roof is approved.

Guarding Floor & Wall Openings

Floor openings and holes, wall openings and holes, and the open sides of platforms may create hazards. People may fall through the openings or over the sides to the level below. Objects, such as tools or parts, may fall through the holes and strike people or damage machinery on lower levels.

Protection for Floor Openings

Standard railings shall be provided on all exposed sides of a stairway opening, except at the stairway entrance. For infrequently used stairways, where traffic across the opening prevents the use of a fixed standard railing, the guard shall consist of a hinged floor opening cover of standard strength and construction along with removable standard railings on all exposed sides, except at the stairway entrance.

A "**standard railing**" consists of top rail, mid rail, and posts, and shall have a vertical height of **42 inches** nominal from the upper surface of top rail to floor, platform, runway, or ramp level. Nominal height of mid rail is **21 inches**.

A "**standard toeboard**" is **4 inches** nominal in vertical height, with not more than 1/4-inch clearance above floor level.

Floor openings may be covered rather than guarded with rails. When the floor opening cover is removed, a temporary guardrail shall be in place, or an attendant shall be stationed at the opening to warn personnel.

Every floor hole into which persons can accidentally walk shall be guarded by either:

1. A standard railing with toeboard, or
2. A floor hole cover of standard strength and construction.

While the cover is not in place, the floor hole shall be constantly attended by someone or shall be protected by a removable standard railing.

Protection of Open-Sided Floors, Platforms, and Runways

Every open-sided floor or platform 4 feet or more above adjacent floor or ground level shall be guarded by a standard railing on all open sides, except where there is an entrance to a ramp, stairway, or fixed ladder. The railing shall be provided with a toeboard wherever, beneath the open sides:

1. Persons can pass,
2. There is moving machinery, or
3. There is equipment with which falling materials could create a hazard.

Every runway shall be guarded by a standard railing, or the equivalent, on all sides **4 feet** or more above floor or ground level. Wherever tools, machine parts, or materials are likely to be used on the runway, a toeboard shall also be provided on each exposed side.

Stairway Railings and Guards

Every flight of stairs with four or more risers shall have standard stair railings or standard hand-rails as specified below. Stair width is measured clear of all obstructions except handrails.

1. On stairways less than 44 inches wide having both sides enclosed, at least one handrail shall be affixed, preferably on the right side descending.
2. On stairways less than 44 inches wide with one open side, at least one stair rail shall be affixed on the open side.
3. On stairways less than 44 inches wide having both sides open, two stair rails shall be provided, one for each side.
4. On stairways more than 44 inches wide, but less than 88 inches, one handrail shall be provided on each enclosed side and one stair rail on each open side.
5. On stairways 88 inches or more in width, one handrail shall be provided on each enclosed side, one stair rail on each open side, and one intermediate stair rail placed approximately in the middle of the stairs.

A "standard stair railing" (stair rail) shall be of construction similar to a standard railing, but the vertical height shall be not more than 34 inches nor less than 30 inches from the upper surface of

the top rail to the surface of the tread in line with the face of the riser at the forward edge of the tread.

Fixed Industrial Stairs

Fixed Industrial Stairs shall be provided for access to and from places of work where operations necessitate regular travel between levels. Requirements include:

1. Fixed industrial stairs shall be strong enough to carry five times the normal anticipated live load.
2. At the very minimum, any fixed stairway shall be able to carry safely a moving concentrated load of 1000 pounds.
3. All fixed stairways shall have a minimum width of 22 inches.
4. Fixed stairs shall be installed at angles to the horizontal of between 30° and 50°.
5. Vertical clearance above any stair tread to an overhead obstruction shall be at least 7 feet measured from the leading edge of the tread.

Portable Ladders

The chief hazard when using a ladder is falling. A poorly designed, maintained, or improperly used ladder may collapse under the load placed upon it and cause the employee to fall.

A ladder is an appliance consisting of two side rails joined at regular intervals by crosspieces on which a person may step to ascend or descend.

The various types of portable ladders include:

1. Stepladder - A self-supporting portable ladder, non-adjustable in length, having flat steps and hinged back.
2. Single Ladder - A non self-supporting portable ladder, nonadjustable in length, consisting of but one section. Its size is designed by overall length of the side rail.
3. Extension Ladder - A non self-supporting portable ladder adjustable in length.

Portable Ladder Requirements:

1. Portable stepladders longer than 20 feet shall not be used.
2. Stepladders shall be equipped with a metal spreader or locking device of sufficient size and strength to securely hold the front and back sections in open position.
3. Single ladders longer than 30 feet shall not be used.
4. Extension ladders longer than 60 feet shall not be used.
5. Ladders shall be maintained in good condition at all times.
6. Ladders shall be inspected frequently and those which have developed defects shall be withdrawn from service for repair or destruction and tagged or marked as "Dangerous, Do Not Use."

Proper use of ladders is essential in preventing accidents. Even a good ladder can be a serious safety hazard when used by workers in a dangerous way.

Portable Ladder Safety Precautions:

1. Ladders shall be placed with a secure footing, or they shall be lashed, or held in position.
2. Ladders used to gain access to a roof or other area shall extend at least 3 feet above the point of support.
3. The foot of a ladder shall, where possible, be used at such a pitch that the horizontal distance from the top support to the foot of the ladder is one-quarter of the working length of the ladder (the length along the ladder between the foot and the support). See figure above.
4. The worker shall always *face* the ladder when climbing up or down.
5. Short ladders shall not be spliced together to make long ladders.
6. Ladders shall never be used in the horizontal position as scaffolds or work platforms.
7. The top of a regular stepladder shall not be used as a step.
8. Use both hands when climbing or descending ladders.
9. Metal ladders shall never be used near electrical equipment.

FIXED LADDERS

A fixed ladder is a ladder permanently attached to a structure, building or equipment. A point to remember is that fixed ladders, with a length of more than 20 feet to a maximum unbroken length of 30 feet shall be equipped with cages or a ladder safety device. A "cage" is a guard that is fastened to the side rails of the fixed ladder or to the structure to encircle the climbing space of the ladder for the safety of the person who must climb the ladder.

Cages shall extend a minimum of 42 inches above the top of a landing, unless other acceptable protection is provided.

Cages shall extend down the ladder to a point not less than 7 feet nor more than 8 feet above the base of the ladder.

Scaffolding Safety

1. The footing or anchorage for scaffolds shall be sound, rigid and capable of carrying the maximum intended load without settling or displacement. Unstable objects, such as barrels, boxes, loose brick, or concrete blocks shall not be used to support scaffolds or planks.
2. Scaffolds and their components shall be capable of supporting at least *four times* the maximum intended load.
3. Scaffolds shall be maintained in a safe condition and shall not be altered or moved horizontally while they are in use or occupied.

4. Damaged or weakened scaffolds shall be immediately repaired and shall not be used until repairs have been completed.
5. A safe means must be provided to gain access to the working platform level through the use of a ladder, ramp, etc.
6. Overhead protection must be provided for personnel on a scaffold exposed to overhead hazards.
7. Guardrails, midrails, and toeboards must be installed on all open sides and ends of platforms more than 10 feet above the ground or floor. Wire mesh must be installed between the toeboard and the guardrail along the entire opening, where persons are required to work or pass under the scaffolds.
8. Employees shall not work on scaffolds during storms or high winds or when covered with ice or snow.
9. As noted earlier, there are a number of scaffold types, and 1910.28 should be reviewed carefully for special requirements that apply to each type.

MANUALLY PROPELLED MOBILE LADDER STANDS AND SCAFFOLDS (TOWERS)

1. All exposed surfaces of mobile ladder stands and scaffolds shall be free from sharp edges, burrs, or other safety hazards.
2. The maximum work height shall not exceed four times the minimum base dimension unless outriggers, guys or braces are added to provide stability.
3. This standard requires guardrails and toeboards for work levels 10 feet or more above the ground or floor.

OTHER WORKING SURFACES

Portable dockboards (bridge plates) shall be secured in position, either by being anchored or equipped with devices which will prevent their slipping. Movement of the dockboard during material handling operations has resulted in forklifts overturning, or falling off the dock, often with serious injury or death to the driver and damage to equipment and material.

- Handholds shall be provided on portable dockboards to permit safe handling when the dockboard must be repositioned or relocated.
- Portable dockboards shall be inspected prior to use
- When not in use, portable dockboards will be stored in a manner to prevent damage